

The Anthomyiidae and Muscidae of Mt. Katahdin, Maine (Diptera)

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Abstract: A preliminary survey was made of the anthomyiid and muscid flies on the upper regions of Mt. Katahdin during the early summer of 1957, 1958, 1959, from a base on Chimney Pond at 2,914-foot elevation. Sixty-nine species and one subspecies were recognized as belonging to the family Anthomyiidae *sens. str.*, and 112 species to the Muscidae, a total that included the unpublished records of 3 muscid species that were not found during the foregoing visits. The species *Chirosia setifer*, *Spilogona broweri*, *S. concomitans*, *S. katahdin*, *Lispocephala aemulata*, *Mydaea grata*, and *Phaonia cauta* are described as new to science, and *Delia tarsifimbria* (Rondani), as newly recorded from North America.

INTRODUCTION

In the early summer of 1957 to 1959, from mid-June to mid-July, I had the opportunity, aided by the experienced support of Dr. A. E. Brower, Forest Entomologist of the State of Maine, of visiting Chimney Pond on Mt. Katahdin for the purpose of making a preliminary survey of the species belonging to the families Anthomyiidae and Muscidae, exclusive of the subfamily Scatophaginae. At the time it was already becoming apparent that changes in the immediate vicinity around Chimney Pond were imminent owing to the increasing number of persons utilizing the camp facilities. It was felt that any extension or modernizing of camp accommodation might detrimentally affect the environment and with it the delicate balance existing with the flora and fauna surrounding the Pond, at least insofar as such changes might render precarious the habitats of the present anthomyiid and muscid populations. Thus it seemed more pressing that a record should be made and preserved of the existing number of species and their abundance, not only of the Pond, but also of the surrounding basin and beyond.

The biotic and physical features of Mt. Katahdin have been sufficiently described and illustrated by Blake (1926, 1931) and Leavitt (1954) so that there remains only to mention the following particulars. Mt. Katahdin is an isolated mountain mass of irregular form arising abruptly out of the surrounding lowlands of central Maine; it represents a northern outpost of the Appalachian Range in the United States. It is situated at lat. 45°55'N, long. 69°55'W, about 25 miles from Millinocket. In elevation the higher summits rise to 5,267 feet at Baxter Peak, an altitude that lies just above the zone of timber growth.

I made my headquarters in the bunkhouse at Chimney Pond, from whence all trails lead conveniently upward, downward, or across the whole South Basin. An outline of these trails may be found in the Appalachian Mountain Association Guide to Mt. Katahdin. The various locations at which collections were made are shown on the accompanying map.

In 1957 I spent 17 days at the camp, from June 29 to July 15, during which period collecting was possible to some extent on most of the days, in windy weather and despite the rain. In 1958 the camp was reached on June 14, two weeks earlier by the calendar than in 1957, in the expectation that seasonal conditions would also be more advanced, thereby providing an opportunity for collecting specimens that had possibly escaped capture the previous year owing to the later start. As it happened, it was found on arrival that seasonal conditions had not advanced and were considerably retarded, and continued so for the remaining days. Collecting on the Saddle plateau and vicinity was seriously curtailed, it being noted that specimens were taken only on June 29, July 3, and July 7. Camp was broken on July 8. It was, all together, a disappointing season for carrying on the work because of the prevailing high winds and low temperatures. In 1959 operations commenced on July 1 and ended on July 20 under more favorable conditions. Only three days were lost on account of all-day rains.

PREVIOUS RECORDS

A search of the literature indicated that there were only a few scattered references to species of Anthomyiidae and Muscidae from Mt. Katahdin. Johnson (1925) in his records of Diptera in the New England states listed 5 nominal muscid species; Blake (1926) in his treatise on the biota of Mt. Katahdin, 6 muscid species; Hockett (1932, 1965), 2 species of *Spilogona*; and Chillcott (1961), 2 species of *Fannia*. All the records cited by the above authors were confirmed by the capture of additional specimens in the present survey with the exception of four, namely, *Spilogona aerea* (Zetterstedt) and *S. tetrachaeta* (Malloch) of Johnson's list, and *Schoenomyza litorella* (Fallén) and *Coenosia flavicoxa* Stein in Blake's records. Through the kindness of Dr. R. L. Jeanne of Boston University I was able to examine Johnson's specimens under *tetrachaeta*, and found that they had been misnamed, and were identical with those of *Spilogona suspecta* (Malloch).

In addition, I have included in the following list of species several unpublished records of specimens taken on Mt. Katahdin that are deposited in the collections of the United States National Museum (USNM) and of Cornell University (CU), and which I have had the privilege of examining. Such records are cited in brackets, and contain 3 species of Muscidae that are not represented in the present survey, namely, *Hoplogaster intacta* (Walker), *Lispocephala erythrocerca* (Robineau-Desvoidy), *Quadrularia annosa* (Zetterstedt).

RESULTS OF THE SURVEY

In the present work 69 species and 1 subspecies of Anthomyiidae and 112 species of Muscidae are recognized. Among the Anthomyiidae are included one hitherto unknown species and one European species unrecorded from North America, namely, *Delia tarsifimbria* (Rondani); among the Muscidae, six species are introduced as new to science, of which three belong to the genus *Spilogona*, and one each to the genera *Lispocephala*, *Mydaea*, and *Phaonia*.

ABBREVIATIONS

For purposes of brevity, the various localities from which the present records were obtained have been assigned a letter, such as A, B, C, and also for each species the number of specimens from all localities have been combined.

The names of localities follow:

A. Roaring Brook and camp	L. Cleftrock pool
B. Basin Pond	M. Lower Saddle trail
C. Pamola Pond	N. Upper Saddle trail
D. Chimney Pond trail	O. Saddle plateau
E. Dry Pond	P. Saddle Spring
F. North Basin trail	Q. Thoreau Spring trail
G. Hamlin Ridge trail	R. Caribou Spring trail
H. Chimney Pond	S. Caribou Spring
I. Chimney Pond and camp	T. Klondike Pond
J. South Basin	U. North Basin
K. Cathedral trail	V. North Basin Pond

List of species with locality records

FAMILY ANTHOMYIIDAE *sens. str.*

Fucellia tergina (Zetterstedt) = *F. intermedia* Lundbeck (Hennig, 1966: 18)

10 ♂, 5 ♀. H, L, N, R, V.

Pycnoglossa flavipennis (Fallén)

2 ♂, 1 ♀. A, M.

Chirosia filicis (Huckett) N. COMB.

1 ♀. E.

Chirosia setifer n. sp.

2 ♂, 3 ♀. E, J, T.

Hylemya alcahoe (Walker)

25 ♂, 1 ♀. A, D, E, F, I, J, T.

Hylemyza partita (Meigen) = *Anthomyza lasciva* Zetterstedt (Hennig, 1969: 245)

13 ♀. C, E, I, J, N, S.

Botanophila inornata (Stein)

1 ♂. I.

Delia alaba (Walker)

10 ♂, 5 ♀. B, E, H, J.

Delia brassicae (Bouché)

4 ♂. I.

- Delia cupricrus* (Walker) = *Hylemyia coenosiaeformis* Stein (Huckett, 1971)
10 ♂, 2 ♀. E, H, J, N, T.
- Delia echinata* (Séguy)
2 ♂. J, M.
- Delia egleformis* (Huckett)
321 ♂, 14 ♀. D, E, I, J, M, N, V.
- Delia exigua* (Meade)
3 ♂, 4 ♀. C, D, I, N.
- Delia lineariventris* (Zetterstedt)
3 ♂, 2 ♀. H, N, T.
- Delia platura* (Meigen)
44 ♂, 18 ♀. B, D, E, I, J, M, N, O, P. (1 ♀, Mt. Katahdin, 4,800 ft. Aug. 1913, C. P. Alexander, CU)
- Delia tarsata* (Ringdahl)
76 ♂, 4 ♀. H, J, M, N, P, S, T.
- Delia tarsifimbria* (Rondani)
21 ♂, 3 ♀. J, M, N.
- Pegohylemyia acquiescens* Huckett
76 ♂, 13 ♀. B, D, E, F, J, I, L, M-N, O.
- Pegohylemyia fugax* (Meigen)
19 ♂, 7 ♀. E, I, J, M, N, O.
- Pegohylemyia hucketti* Ringdahl
3 ♂, 2 ♀. J, N, T.
- Pegohylemyia profuga* (Stein)
4 ♂, 3 ♀. B, H, M-N, P, Q, V.
- Pegohylemyia sericea* (Malloch)
9 ♂, 5 ♀. D, E, H, J, M, O.
- Paregle aestiva* (Meigen)
9 ♂, 6 ♀. B, C, D, I, J, O.
- Paregle cinerella* (Fallén)
1 ♀. M-N.
- Paregle radicum* (Linnaeus)
21 ♂, 1 ♀. I, J.
- Lasiomma abietis* (Huckett)
6 ♂, 14 ♀. D, E, F, I, J, L, M-N, O.
- Lasiomma anthracinum* (Czerny)
5 ♂, 8 ♀. D, E, I, J.
- Lasiomma octoguttatum* (Zetterstedt)
20 ♂, 7 ♀. D, E, I, J, M, N, O, Q.
- Acrostilpna atricauda* (Zetterstedt)
61 ♂, 15 ♀. B, C, D, E, F, I, J, L, M, N, O-P, U.
- Acrostilpna latipennis* (Zetterstedt)
10 ♂, 2 ♀. B, D, F, H, J, M, N, T, V.
- Acrostilpna restorata* Huckett
26 ♂, 4 ♀. C, D, E, M, N, O-P, R, S.
- Crinurina cuneicornis* (Zetterstedt)
94 ♂, 69 ♀. B, C, D, E, I, J, M, N, O-P, S.
- Macrophorbia houghi* Malloch
1 ♂. D.

Eremomyioides cylindrica (Stein)

4 ♂, 3 ♀. H, J, N.

Pegomya bicolor (Wiedemann)

1 ♀. J.

Pegomya connexa Stein

5 ♂, 12 ♀. D, E, H, J, M-N.

Pegomya corrupta Hockett

1 ♂, 1 ♀. D, O.

Pegomya flavipalpis (Zetterstedt)

10 ♂, 1 ♀. D, H, J, L, N.

Pegomya frigida (Zetterstedt)

1 ♂. E.

Pegomya geniculata (Bouché)

6 ♂, 2 ♀. D, E, J, M-N, U.

Pegomya gilva (Zetterstedt)

3 ♂, 1 ♀. A, D, H.

Pegomya indicta Hockett

1 ♂. M-N.

Pegomya labradorensis Malloch

5 ♂, 3 ♀. B, D, E, H, J, M-N.

Pegomya lunatifrons (Zetterstedt)

27 ♂, 8 ♀. D, H, J, M, N. (1 ♀, Mt. Katahdin, "Camp Kennedy," 3,000 ft. Aug. 1902, USNM)

Pegomya pilosa Stein

80 ♂, 4 ♀. B, D, E, F, H, J, M, N, V.

Pegomya rufipes (Fallén)

1 ♀. O.

Pegomya solitaria Stein

1 ♂, 1 ♀. H, J.

Pegomya tenera obscurior Collin

6 ♂. F, H, J.

Pegomya univittata (von Roser)

2 ♂. J.

Pegomya vittigera (Zetterstedt)

1 ♀. E.

Pegomya winthemi (Meigen)

1 ♀. E.

Nupedia infirma (Meigen) = *dissecta* of authors, not Meigen (Ackland, 1965: 207)

376 ♂, 140 ♀. A, B, D, E, F, I, J, K, M, N, O-P, T, V.

Nupedia nigroscutellata (Stein)¹

113 ♂, 76 ♀. B, C, D, E, I, J, M, N, P.

Nupedia patellans (Pandellé)

12 ♂, 41 ♀. E, H, J.

Pseudonupedia intersecta (Meigen)

20 ♂, 6 ♀. B, D, E, H, J, N, O-P, V.

¹Of male specimens, 98 were regarded as a pale variant of *nigroscutellata*, and to be identical with the type-specimen of *Pegomya slossonae* Malloch. Females exhibited no differences.

- Hydrophoria alpina* Hockett
1 ♀. H.
- Hydrophoria conica* (Wiedemann)
33 ♀. D, E, I, J, M, N.
- Hydrophoria implicata* Hockett
2 ♂, 1 ♀. B, J, M-N.
- Hydrophoria packardii* Malloch
3 ♂, 1 ♀. D, J, N.
- Hydrophoria proxima* Malloch
3 ♂. C, D.
- Hydrophoria uniformis* Malloch
1 ♀. N.
- Anthomyia oculifera* Bigot
1 ♂. J.
- Anthomyia pluvialis* (Linnaeus)
1 ♀. C.
- Leucophora johnsoni* (Stein)
1 ♀. M-N.
- Leucophora marylandica* (Malloch)
2 ♀. E, N.
- Leucophora sociata* (Meigen)
1 ♂. B.
- Paraprosalpia brunneigena* (Schnabl) = *Prosalpia incisa* Ringdahl (Hennig, 1969: 11)
3 ♂, 4 ♀. D, H, J.
- Paraprosalpia littoralis* (Malloch)
6 ♂, 3 ♀. B, J, M, N.
- Paraprosalpia pilularis* (Stein)
13 ♂. E, H, J.
- Paraprosalpia silvestris* (Fallén)
36 ♂, 59 ♀. A, B, C, D, E, F, I, J, K, M, N, O, P, Q, R, T. (1 ♀, Mt. Katahdin, 4,500 ft. Aug. 1902, USNM)

FAMILY MUSCIDAE

- Schoenomyza chrysostoma* Loew
3 ♀. H. (2 ♂, 9 ♀, Mt. Katahdin, Aug. 1913, C. P. Alexander, CU)
- Coenosia tigrina* (Fabricius)
3 ♂, 3 ♀. H, N.
- Limosia atrata* (Walker)
1 ♀. H.
- Limosia conforma* Hockett
1 ♂, 2 ♀. E, N. (1 ♂, 6 ♀, Mt. Katahdin, summit, VIII-19-02, USNM)
- Limosia fuscifrons* (Malloch)
9 ♀. D, I, J.
- Limosia nigrescens* (Stein)
1 ♂, 2 ♀. E, N, S. (1 ♂, 3 ♀, Mt. Katahdin, 5,100 ft. Aug. 1913, C. P. Alexander, CU)
- Limosia trisetata* (Stein)
20 ♂, 40 ♀. D, E, F, H, J, M, O, Q. (1 ♀, Mt. Katahdin, 5,100 ft. Aug. 1913, C. P. Alexander, CU)
- Hoplogaster intacta* (Walker)
(2 ♀, Mt. Katahdin, Aug. 1913, C. P. Alexander, CU)

Hoplogaster minor Hockett

6 ♂, 15 ♀. E, H, J, M, N, V.

Hoplogaster morrisoni Malloch

1 ♂. P.

Hoplogaster octopunctata (Zetterstedt)

1 ♀. T.

Macrorchis ausoba (Walker)

13 ♂, 1 ♀. D, I, J, N.

Lispocephala aemulata n. sp.

1 ♂. J.

Lispocephala alma (Zetterstedt)

3 ♀. D, E.

Lispocephala erythrocerca (Robineau-Desvoidy)

(2 ♀, Mt. Katahdin, 5,100 ft. Aug. 1913, C. P. Alexander, CU)

Lispocephala varians Malloch

1 ♀. H.

Pentacricia aldrichii Stein

1 ♀. I.

Lispe cotidiana Snyder

1 ♂. D.

Lispe tentaculata (De Geer)

4 ♂, 2 ♀. B.

Lispoides aequifrons (Stein)

8 ♂, 3 ♀. D, I, J, M-N.

Spilogona alticola (Malloch) ♂

54 ♂. A, B, D, E, F, I, J, M, N.

Spilogona alticola—*contractifrons* complex ♀ ♀

133 ♀ + 2 ♀? B, D, E, F, I, J, L, M, N, O-P, Q, S, V.

Spilogona arctica (Zetterstedt)

638 ♂, 298 ♀. B, D, E, F, I, J, K, L, M, N, O-P, Q, R, T, V.

Spilogona argenteiceps Malloch

146 ♂, 67 ♀. B, D, E, F, I, J, L, M, N, O, S, V.

Spilogona broweri n. sp.

25 ♂, 1 ♀. D, E, F, H, J, M, V.

Spilogona caroli (Malloch)

9 ♂, 11 ♀. D, F, I, J, L, M, N.

Spilogona concomitans n. sp.

1 ♂, 1 ♀. H, J.

Spilogona contractifrons (Zetterstedt) ♂

27 ♂. A, D, E, F, H, K, M, N. (1 ♂, Mt. Katahdin, 5,100 ft. Aug. 1913, C. P. Alexander, CU)

Spilogona forticula Hockett

30 ♂, 21 ♀. D, E, F, H, J, L, M, V.

Spilogona gibsoni (Malloch)

15 ♂, 30 ♀. A, D, E, F, H, J, M, N, O-P, Q, V.

Spilogona hypopygialis Hockett

7 ♂, 4 ♀. D, T.

Spilogona katahdin n. sp.

4 ♂, 2 ♀. E, H, J, T.

Spilogona magnipunctata (Malloch)

60 ♂, 62 ♀. C, D, E, F, I, J, M, N, O, Q, R, V.

Spilogona monacantha Collin

207 ♂, 34 ♀. B, D, E, I, J, L, M, N, V.

Spilogona nigriventris (Zetterstedt)

12 ♂, 1 ♀. H, J.

Spilogona obscuripennis (Stein)

1 ♂. T.

Spilogona placida Hockett

33 ♂, 6 ♀. E, H, J, M, N.

Spilogona semiglobosa (Ringdahl)

7 ♂, 30 ♀. D, E, I, J, M, N.

Spilogona setilamellata Hockett

3 ♂. N, S.

Spilogona sororcula (Zetterstedt)

5 ♂, 2 ♀. F, H, J, M, N.

Spilogona suspecta (Malloch)

7 ♂, 4 ♀. E, F, L, P, Q, V. (1 ♂, Mt. Katahdin, summit, Aug. 19, 1902 USNM; 1 ♀, Mt. Katahdin, 5,100 ft. Aug. 1913, C. P. Alexander, CU; 2 ♂, Mt. Katahdin, Aug. 18, 1923, I. H. Blake, BU)

Spilogona trigonifera (Zetterstedt)

15 ♂, 14 ♀. D, E, I, J, M, N, P.

Pseudolimnophora nigripes (Robineau-Desvoidy)

4 ♂. I, J.

Helina fulvisquama (Zetterstedt)

1 ♂, 9 ♀. E, F, H, J, M, N, P.

Helina maculipennis (Zetterstedt)

1 ♂, 8 ♀. C, E, I, J, N.

Helina rothi Ringdahl

2 ♂, 2 ♀. E, M-N, O.

Quadrularia annosa (Zetterstedt)

(2 ♂, 4 ♀, Mt. Katahdin, "Camp Kennedy," 3,000 ft. Aug. 1902; 1 ♀, Mt. Katahdin, summit, 5,215 ft. Aug. 19, 1902, both USNM)

Quadrularia laetifica (Robineau-Desvoidy)

5 ♂, 1 ♀. D, L, M-N, O, Q.

Hebecnema affinis Malloch

44 ♂, 6 ♀. B, E, I, J, T.

Hebecnema nigricolor (Fallén)

3 ♂. J, M-N.

Myospila meditabunda (Fabricius)

4 ♂, 24 ♀. B, C, D, E, I, J, M, O, P.

Mydaea furtiva Stein

3 ♂, 26 ♀. D, E, F, I, J, M, N, O-P, T.

Mydaea grata n. sp.

1 ♂, 3 ♀. F, H, J.

Mydaea neglecta Malloch

4 ♀. D, F, J, M-N.

Mydaea nubila Stein

2 ♂, 2 ♀. C, D, J.

Mydaea obscurella Malloch

32 ♂, 21 ♀. A, D, E, F, H, J, M, N, P.

Mydaea palpalis Stein

123 ♂, 2 ♀. B, D, E, F, I, J, L, M, N, T.

Mydaea sootryeni Ringdahl

5 ♂. J.

Fannia abrupta Malloch

50 ♂, 70 ♀. B, D, E, F, I, J, M, N, O, Q, V.

Fannia aethiops Malloch

67 ♂, 39 ♀. D, I, J, M, N.

Fannia bijimbriata Collin

1 ♂. E.

Fannia brevipalpis Chillcott

25 ♂. D, E, M-N.

Fannia brooksi Chillcott

1 ♂. H.

Fannia canicularis (Linnaeus)

17 ♂, 2 ♀. F, I, J, M, N.

Fannia ciliatissima Chillcott

3 ♂, 1 ♀. H, J.

Fannia flavibasis Stein

3 ♂. H.

Fannia immaculata Malloch

5 ♂, 2 ♀. D, E, I, J, V.

Fannia immutica Collin

2 ♀. F.

Fannia manicata (Meigen)

4 ♂. I. (1 ♀, Mt. Katahdin, 4,800 ft. Aug. 1913, C. P. Alexander, CU)

Fannia melanura Chillcott

1 ♀. A. (1 ♀, Mt. Katahdin, summit, 5,215 ft. Aug. 1902, USNM)

Fannia metallipennis (Zetterstedt) = *Homalomyia kowarzi* Verrall (Hennig, 1962: 619)

20 ♂, 2 ♀. A, B, D, H, J.

Fannia mutica (Zetterstedt)

1 ♂, 1 ♀. H, J.

Fannia nidicola Malloch

1 ♀. V.

Fannia postica (Stein)

2 ♂, 24 ♀. B, E, H, J, M, N, O.

Fannia rondanii (Strobl)

2 ♂. J, V.

Fannia scalaris (Fabricius)

17 ♂, 1 ♀. D, I, V.

Fannia sociella (Zetterstedt)

47 ♂, 36 ♀. B, D, E, H, J, M-N, O, V.

Fannia spathiophora Malloch

1 ♂, 11 ♀. D, I, J.

Ceolomyia subpellucens (Zetterstedt)

167 ♂, 122 ♀. B, D, E, I, J, M, N, O, Q, T, V.

Azelia gibbera (Meigen)

1 ♂. J.

- Hydrotaea cristata* Malloch
1 ♀. H.
- Hydrotaea houghi* Malloch
3 ♀. E, I, N.
- Hydrotaea militaris* (Meigen)
29 ♂, 219 ♀. B, C, D, E, F, G, I, J, L, M, N, O, P, Q, R, S, T, V.
- Hydrotaea pilipes* Stein
1 ♀. P.
- Hydrotaea pilitibia* Stein
2 ♀. J, Q.
- Hydrotaea spinifemorata* Hockett
5 ♂, 13 ♀. B, E, F, J, M, N, O-P.
- Hydrotaea unispinosa* Malloch
1 ♀. E.
- Lasiops albibasalis* (Zetterstedt)
54 ♂, 37 ♀. E, F, I, J, L, M, N, O, Q, R, V. (1 ♀, Mt. Katahdin, summit, 5,215 ft. Aug. 19, 1902, USNM)
- Lasiops hirtulus* (Zetterstedt)
26 ♂, 50 ♀. F, H, M, N, O-P, Q, R, S, T. (1 ♀, Mt. Katahdin, 5,200 ft. Aug. 1913, C. P. Alexander, CU)
- Lasiops innocuus* (Zetterstedt)
242 ♂, 150 ♀. B, D, E, F, I, J, M, N, O-P, Q, R, S, T, V.
- Lasiops rufisquama* (Schnabl)
3 ♂, 1 ♀. E, F, I, J.
- Lasiops spiniger* (Stein)
264 ♂, 269 ♀. B, D, E, F, I, J, K, L, M, N, O-P, Q, R, T, V. (1 ♀, Mt. Katahdin, 4,800 ft., 1 ♀, at 5,100 ft., both Aug. 1913, C. P. Alexander, CU; 1 ♂, 2 ♀, Mt. Katahdin, "Camp Kennedy," 3,000 ft. Aug. 1902, 1 ♂, Mt. Katahdin, 3,400 ft. Aug. 14, 1902, both USNM)
- Alloeostylus diaphanus* (Wiedemann)
4 ♂, 2 ♀. F, H, J, N, P. (2 ♀, Mt. Katahdin, "Camp Kennedy," 3,000 ft. 1902, USNM)
- Dendrophaonia querceti* (Bouché)
1 ♀. J.
- Phaonia apicata* Johannsen
5 ♂, 3 ♀. A, E, F, J, M.
- Phaonia bysia* (Walker)
2 ♀. E, M.
- Phaonia cauta* n. sp.
2 ♂. J.
- Phaonia curvipes* (Stein)
18 ♂, 13 ♀. B, C, E, H, J.
- Phaonia errans* (Meigen)
1 ♂. D.
- Phaonia errans* var. *luteva* (Walker)
1 ♀. F.
- Phaonia protuberans* Malloch
55 ♂, 59 ♀. C, D, I, J, M, N, O-P, Q, R, S, V.
- Phaonia rugia* (Walker)
20 ♂, 32 ♀. B, C, D, E, M, N, O, Q, R, T.
- Phaonia serva* (Meigen)
19 ♂, 24 ♀. B, C, D, E, F, I, J, M-N, Q, S.

Phaonia soccata (Walker)

1 ♀. Q.

Phaonia tipulivora Malloch

2 ♂, 1 ♀. D, I, R.

Lophosceles cinereiventris (Zetterstedt)

353 ♂, 246 ♀. B, C, D, E, I, J, L, M, N, O-P, S, T, V.

Lophosceles frenatus (Holmgren)

2 ♂, 1 ♀. H, M-N.

Muscina flukei Snyder

1 ♂, 19 ♀. C, D, E, I, J, M, N, P.

Muscina stabulans (Fallén)

1 ♂, 1 ♀. D, I.

Mesembrina latreillii Robineau-Desvoidy

3 ♀. H, J, N.

Morellia micans (Macquart)

3 ♂, 9 ♀. C, F, H, J, M-N, R, T.

Morellia podagrica (Loew)

34 ♂, 40 ♀. A, B, C, D, E, F, G, I, J, L, N, O, Q, R, T.

Pyrellia cyanicolor (Zetterstedt)

1 ♂, 12 ♀. C, D, E, J, M, N, T.

Musca domestica Linnaeus

6 ♂, 3 ♀. I, M.

Chirosia setifer, NEW SPECIES

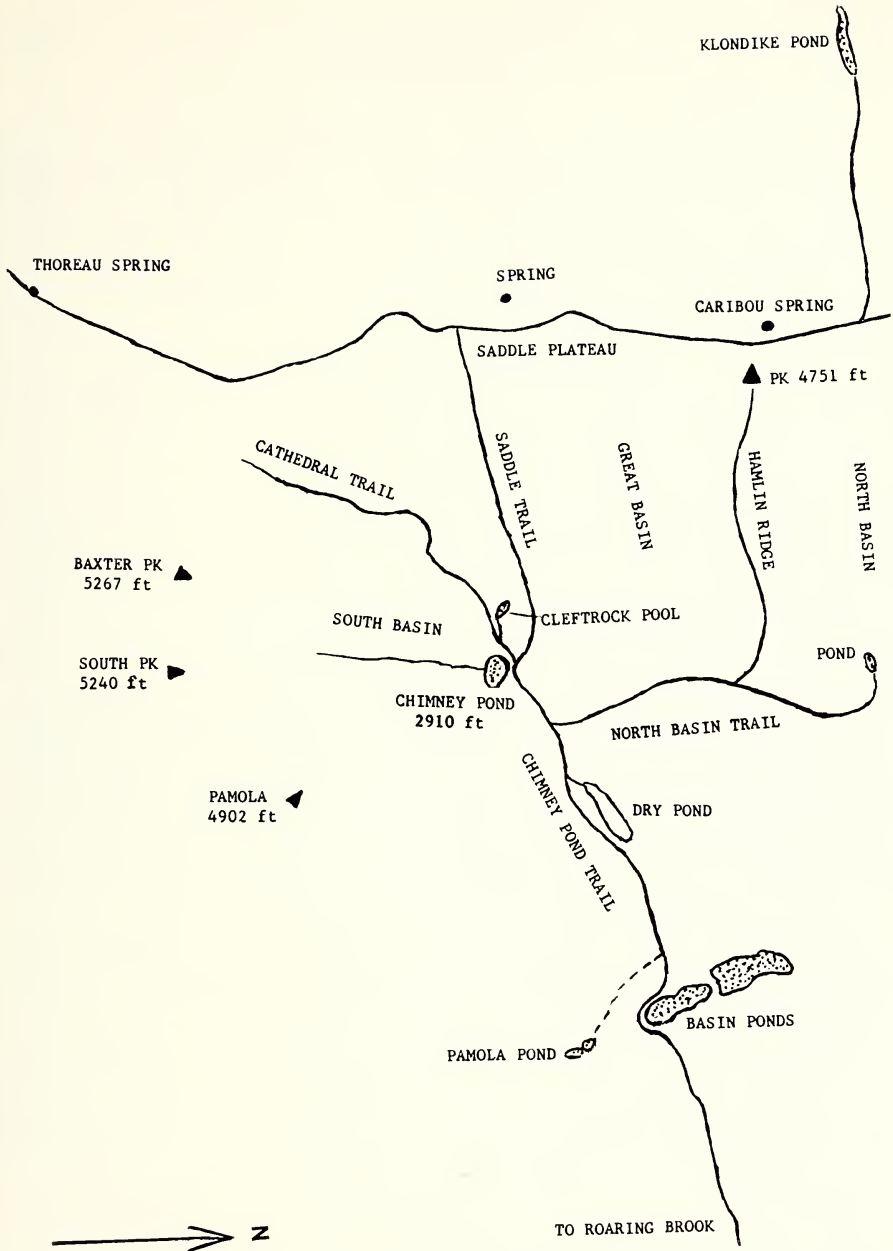
Male. Black, subshining, mesonotum and abdomen with brownish pruinescence, head with parafrontals brownish, parafacials, cheeks and face gray, interfrontalia purplish black and with a whitish sheen when seen from in front, second antennal segment brownish, third black, palpi dark brown, haustellum dull. Abdomen with restricted subtriangular marks. Legs black, pulvilli whitish. Wing-veins and calyptrae yellowish, knobs of halteres yellow.

Eyes broadly separated at vertex, wider apart than distance between first pair of dorso-central bristles, interfrontalia as wide as breadth of third antennal segment, height of cheek and length of arisal hairs respectively about equal to half the antennal width, vertical bristles long and erect, 2 pairs of reclinate paraorbitals and 3 pairs of parafrontal bristles, profrons prominent, parafacials narrow and receding ventrad, proboscis swollen. Mesonotum without stripes, 2 pairs of presutural acrostical bristles, the series being narrowly separated, prealar slightly longer than half length of posterior notopleural bristle, scutellum with ventral hairs, sternopleurals 1:2, all long. Abdomen slender, depressed, slightly tapering on caudal region as seen from above, hypopygium nonswollen, processes of sternum 5 broad and bluntly rounded at apex, weakly bristled.

Fore tibia notably setulose ventrad, with 1 or 2 *ad*, 2 *pv*, mid femur with extensive series of *av* setae, 3 proximal *pv*, mid tibia with 1 *ad*, 2 *pd*, 2 *pv*, hind femur with 5 or 6 *av*, 3 or 4 proximal short *pv*, hind tibia with 4 *av*, 4 *ad*, 3 *pd*, 4 or 5 semierect *post* setulae, apical *pv* robust.

Wings with costal setulae irregularly coarse, semierect on proximal half of costa, costal thorn as long as *r-m* cross-vein.

Female. Similar to male except for sexual characters, interfrontalia evenly broad to vertex, as wide as length of third antennal segment; abdomen black, shiny, sparsely dusted and without medial stripe; caudal pair of ocellar bristles upright, prealar variable in length, not as long as posterior notopleural bristle; abdomen with discal bristles on terga 3, 4, 5. Fore



Sketch map showing collecting localities on Mt. Katahdin. Distances from Chimney Pond to Basin Pond are 1.2 miles; to the Saddle, 1.2 miles; to North Basin Pond, 1.3 miles; to Thoreau Spring, 2.6 miles; to Caribou Spring, 2.1 miles; to Klondike Pond, 3.0 miles (A.M.C. Katahdin Guide, 1956).

tibia normal, with 1 *ad*, 2 *post*, 1 mid *pv*, apical *pv* robust, mid femur with 4 short *av*, 3 *pv*, mid tibia with robust *ad*, 3 or 4 *pd*, 1 *pv*, hind femur with 5 *av*, 2 *pv*, hind tibia with 4 or 5 *av*, 4 or 5 *ad*, 3 or 4 *pd*, 1 semierect *post* setula, apical *pv* strong.

Length, 4.5 to 5 mm.

HOLOTYPE AND ALLOTYPE: ♂ and ♀, Mt. Katahdin, Klondike Pond, 3,500 feet, July 12, 1959 (USNM). Syntypes: 1 ♀, same data as holotype; 1 ♂, Mt. Katahdin, South Basin, 3,000 feet, July 6, 1959; 1 ♀, Mt. Katahdin, Dry Pond, 2,800 feet, July 10, 1959 (both HCH).

The male of *Chirosia setifer* has a slender, depressed abdomen, and may be separated from males of similar character by the broad frons with femalelike bristling. In both sexes there are two pairs of reclinate paraorbital bristles and two long caudal sternopleurals, arista distinctly pubescent.

I have tentatively followed Collin (1955) in restricting the genus *Pycnoglossa* Coquillett (1901) to the single species *Musca flavipennis* Fallén, and along with Collin (loc. cit.) and Hennig (1966: 251-268) have regarded the remaining species in *Pycnoglossa* as akin to those in *Chirosia* Rondani on account of their similar habits and behavior as recorded.

***Spilogona broweri*, NEW SPECIES**

Male. Head with parafrontals and cheeks gray, parafacials whitish pruinulent, the broad interfrontalia with a whitish sheen when seen from in front, haustellum shiny; mesonotum and scutellum deep seal brown, subshining, humeral callosities gray when seen from behind; abdomen gray, terga 1 + 2 dark brown, tergum 3 with a pair of subquadrate and tergum 4 with subtriangular marks, each with or without a medial stripe, the subquadrate marks may be fused lightly across dorsum, tergum 5 with a pair of narrow submedial marks. Legs black, pulvilli whitish. Wings clear, upper calyptal scale white, lower slightly dulled and margin pale brown, knobs of halteres yellow.

Frons at vertex as wide as distance between first pair of dorsocentral bristles, interfrontalia evenly broad caudad, wider than breadth of third antennal segment, inner pair of vertical bristles robust and erect, parafrontals narrow and bristled as in female, with 2 pairs of reclinate paraorbitals and 3 pairs of incurving parafrontal bristles, anterior pair of ocellar bristles robust, parafacials narrow and receding ventrad, vibrissae strong, eyes tall, cheeks reduced in height to one-half the width of third antennal segment, the latter nearly twice as long as wide, at apex nearly reaching a level with oral margin, arista minutely pubescent; mesonotum without stripes, acrosticals coarse, irregularly set, one or two presutural pairs bristly, 3 pairs of postsutural dorsocentral bristles, notopleural depression without setulae, predorsal interspatial mesopleural bristle (*lückenborste*) absent, scutellum with declivities hairless, sternopleurals 1:2, abdomen subovate and slightly depressed, processes of sternum 5 shiny and broadly maintained distad, blunt at apex, sparsely bristled.

Fore tibia with 1 or 2 weak *post*, mid femur with 3 or 4 proximal *pv*, mid tibia with or without a setulose *ad*, 1 or more *pd*, hind femur with 2 to 4 *av* on distal half, 2 to 4 short *pv* on proximal half, hind tibia with 2 *av*, 1 or 2 *ad*, apical *av* robust. Wings with costal setulae coarse, costal thorn weak, veins R_{4+5} and M_{1+2} gradually diverging toward wing margin, *m-cu* cross-vein upright.

Length, 4 mm.

The type series from Mt. Katahdin is as follows.

HOLOTYPE: ♂, Chimney Pond trail, 2,800-3,000 feet, June 27 to 30, 1958 (USNM). Syntypes: Chimney Pond trail, 1 ♂, July 1, 1 ♂, July 4, 1957, 2 ♂, same data as holotype (all USNM); North Basin Pond 2 ♂, July 17, 1959 (USNM), 1 ♂, July 7, 1959 (HCH); Chimney Pond, 4 ♂, June 30 to July 15, 1957 (A. E. Brower; CNC), 2 ♂, July 9, 1959 (HCH); South

Basin, 2 ♂, July 10, 1957 (A. E. Brower; CNC), 1 ♂, July 6, 1959 (HCH); Saddle trail, 2 ♂, July 3 to 13, 1 ♂, July 4 to 12, 1957 (CNC); Dry Pond, 2 ♂, July 10, 1959 (HCH); North Basin trail, 1 ♂, July 5, 1959, and Hamlin Ridge trail, 1 ♂, July 13, 1959 (both HCH).

Spilogona broweri is related to *S. forticula* Hockett, from which it differs in having the male thorax seal brown, and the abdomen, from base to apex, not deeply formed. In both species the antennae are longer and cheeks narrower than in *arctica*, *contractifrons*, or *alticola*. I have in addition a male and female, the only female specimen unfortunately, taken on the Chimney Pond trail on July 2, 1958, that I regard as belonging to *broweri*. Both specimens are quite teneral, the frons of the male having collapsed. The female specimen differs from that of *forticula* by its darker color, the mesonotum having three suffused brown stripes. Named in honor of Dr. A. E. Brower, whose field assistance and generous cooperation served on many occasions to lighten the work of carrying out this survey.

Spilogona concomitans, NEW SPECIES

Male. Head as in *broweri*, interfrontalia with a brownish sheen when seen from in front, parafrontals, parafacials, face and cheeks brown, haustellum polished; thorax dull brown, mesonotum shiny when seen from behind, with 3 faint stripes, humeral callosities pale brown; abdomen slate gray, shiny, terga 1 + 2 brown, terga 3 and 4 with brownish subtriangular marks confined to dorsum, and with an interrupted mid-dorsal stripe, tergum 5 with reduced submedial marks. Legs black, pulvilli brownish. Wings tinged, calyptrae yellowish, knobs of halteres yellow.

Frons broad and bristled as in *broweri*, with 6 or 7 pairs of parafrontal bristles, parafacials narrow and receding ventrad, cheeks nearly as high as width of third antennal segment, the latter 1.5 times as long as wide. Mesonotum with paired series of short acrosticals, the mid presutural pair bristly, posterior notopleural bristle with hairs at base, scutellum with preapical hairs on declivities, 3 pairs of postsutural dorsocentral bristles, sternopleurals 1:2. Abdomen stout and thickened, processes of sternum 5 dull, broad and truncated at apex, weakly bristled.

Fore tibia with mid *post*, mid femur with 3 or 4 *pv* on proximal half, mid tibia with 1 *ad*, 2 *pd*, hind femur with full series of *av*, and proximal series of *pv*, hind tibia with 1 *av*, 2 *ad*, and 1 weak mid-*post*. Wings with costal thorns weak, veins R_{4+5} and M_{1+2} diverging slightly toward margin of wing, *m-cu* cross-vein upright.

Length, 3.75 mm.

Female. Paler brown than male, parafacials and cheeks grayish when viewed laterad, humeral callosities paler; abdomen ovate, lustrous, with paired expansive marks on terga 3 and 4, ovipositor with recurrent spinules on subanal sclerite. Legs bristled as in male, the proximal bristles of mid and hind femora sparse and finer.

Length, 4.25 mm.

HOLOTYPE: ♂, Mt. Katahdin, South Basin, 3,000 feet, July 11, 1957 (USNM).

ALLOTYPE: ♀, Mt. Katahdin, Chimney Pond, 2,950 feet, July 14, 1959 (USNM).

The species *Spilogona concomitans* resembles *S. broweri*, from which it differs in having parafrontals, parafacials and cheeks infuscated, antennae shorter and cheeks broader, posterior notopleural bristle with hairs at base, scutellum with preapical hairs on declivities, and hind femur with a full series of anteroventral bristles. I have in addition a male specimen with antennae and abdomen missing, that I regard as conspecific with *concomitans*, taken on Hamlin Ridge trail on July 13, 1959.

Spilogona katahdin, NEW SPECIES

Male. Gray, head with parafrontals, parafacials and cheeks silvery, occiput gray, interfrontalia black, haustellum dull; mesonotum and scutellum subshining, brownish, humeral callosities and pleura gray, mesonotum with 3 stripes; abdomen gray, terga 1 + 2 partly or entirely blackish on dorsum, tergum 3 with quadrate and tergum 4 subtriangular marks that do not extend to lateral margins of dorsum, and with or without a weak medial stripe, tergum 5 with trace of medial marking, hypopygium lightly dusted. Legs black, pulvilli tinged. Wings smoky, veins brown, *m-cu* cross-vein with or without pale infuscation, calyptrae yellowish, knobs of halteres yellow.

Eyes bare, narrower part of frons equal to distance between posterior ocelli inclusive, interfrontalia uninterrupted caudad, series of parafrontal bristles continued caudad to level with anterior ocellus, caudal pair reclinate, profrons half as long and cheek three-fourths as high as width of third antennal segment, the latter one and a half times as long as wide, parafacials in profile receding ventrad, artista minutely pubescent, proboscis thick; mesonotum with presutural acrosticals diverse and irregularly arranged, being bristly and setulose, posterior notopleural bristle with hairs near base, mesopleural series with fine supplementary predorsal bristle (*lückenborste*), 4 pairs of postsutural dorsocentral bristles, sternopleurals 1:2; abdomen conical, marks on tergum 3 longer than wide, on tergum 4 not extending to anterior border, sternum 1 with setulae, processes of sternum 5 broadly extended and bluntly rounded at apex, weakly bristled.

Fore tibia with weak *post*, mid femur with slender proximal *pv*, mid tibia with 1 *ad*, 2 *pd*, hind femur with entire series of *av*, those on proximal half much weaker, with 2 or 3 slender proximal *pv*, hind tibia with 3 *av*, 2 *ad*, 2 weak *pd*. Wings with short costal setulae and thorns, *m-cu* cross-vein upright and slightly bowed inward at middle.

Length, 5.5 mm.

Female. Dark gray, parafrontals gray, parafacials and cheeks whitish pruinose, interfrontalia with a whitish sheen when seen from in front, frontal triangle dull and extending to frontal border, haustellum dull or with a large dull patch on ventral surface; mesonotum and scutellum gray; abdomen subovate, with a pair of ill-formed subtriangular marks on terga 3 and 4 respectively, that extend to lateral margins of dorsum, tergum 5 obscurely marked. Wings faintly tinged, *m-cu* cross-vein clouded.

Head with 2 pairs of reclinate paraorbital bristles, mesonotum with 3 pairs of bristly and several setulose presutural acrosticals; ovipositor with polished sclerites and fine setulae on anal plates. Legs bristled as in male, the *av* and *pv* on proximal half of hind femur weak. Otherwise similar to male except for sexual characters.

Length, 4.5 mm.

HOLOTYPE: ♂, Mt. Katahdin, Klondike Pond, 3,500 feet, July 12, 1959 (USNM).

ALLOTYPE: ♀, Mt. Katahdin, Dry Pond, 2,800 feet, July 10, 1959 (USNM). Syntypes: 1 ♂, same data as holotype. 1 ♂, Mt. Katahdin, South Basin, 3,000 feet, July 1, 1958 (CNC); 1 ♂, Chimney Pond, 2,914 feet, June 30 to July 15, 1957 (HCH); 1 ♀, South Basin, 3,000–3,500 feet, July 10, 1957 (HCH).

The species *Spilogona katahdin* possesses the habitus of *S. norvegica* Ringdahl, appearing dark gray, having the haustellum dull, and in the male the abdomen conical or slender. The male of *katahdin* differs from that of *norvegica* in having parafacials and cheeks narrower, and abdominal marks less extended. The above specimens in both sexes of *katahdin* possess fine hairs near base of posterior notopleural bristle, a fine predorsal interspatial bristle in the

mesopleural series, 2 or 3 pairs of bristly presutural acrosticals, and a few setulae on abdominal sternum 1.

***Lispocephala aemulata*, NEW SPECIES**

Male. Gray, parafrontals brownish, interfrontalia black, parafacials, face and cheeks white, second and base of third antennal segments yellow, palpi pale yellow; mesonotum with two brown stripes, fuscous laterad, humerals gray, scutellum dingy and with inconspicuous brown marks at basal angles; abdomen yellowish testaceous on basal two segments, gray caudad, terga 1 + 2 and 3 with well-formed vitta, that become lineal and weak on terga 4 and 5, with a pair of brown spots on terga 3 to 5. Femora gray-black, narrowly fulvous at apices, tibiae and tarsi entirely fulvous. Wings tinged, cross-veins clear.

Frons with two pairs of paraorbital and three pairs of parafrontal bristles, arista short pubescent; mesonotum with 2 irregularly paired presutural acrostical bristles; abdomen robust, marginal and discal bristles weak, successively becoming stronger caudad, tergum 5 with 4 or 5 slender marginal bristles laterad, processes of sternum 5 shiny and broadly maintained to apical margin, inner border with a coarse series of fine setulae from base to apex, those on proximal half short, on distal half long, cerci slender and needlelike in form.

Fore tibia with a setulose mid *post*, mid tibia with 1 *post*, hind femur with entire series of *av*, hind tibia 1 *av*, 2 *ad*, 1 strong and 1 weak *pd*, with semierect *ant* setulae.

Length, 4 mm.

HOLOTYPE: ♂, Mt. Katahdin, South Basin, 3,000–3,500 feet, July 5, 1958 (USNM).

The male of *Lispocephala aemulata* has the cross-veins unclouded, and basal segments of abdomen yellowish testaceous. In *L. tinctinervis* Malloch, the male of which possesses an abdomen of similar color, both cross-veins are clouded, and inner margins of processes to sternum 5 marked by a chitinous projection (Malloch, 1935: 566; Fig. 2).

I have also compared *aemulata* with a male of *L. surda* (Zetterstedt) as treated by Collin (1963), a specimen of which was kindly furnished me by Mr. A. C. Pont of the British Museum (Natural History), and after he had examined the holotype of *aemulata*. I have concluded that the two taxa, although very similar, are not conspecific, *aemulata* differing in its paler aspect, as exemplified in the whitish parafacials, face and cheeks, and by the undarkened pellucid coloring of the two basal abdominal segments.

***Mydaea grata*, NEW SPECIES**

Male. Black, parafrontals, parafacials and cheeks silvery pruinulent, antennae black, anterior border of second segment brown, palpi dark brown, paler basad. Thorax black, mesonotum viewed from behind lacking dust except between the inner pair of stripes on presutural region, outer pair of stripes obscure on postsutural region. Abdomen evenly yellowish gray, lustrous, without darker patches or checkering, with a lineal dorsocentral vitta. Coxae black, concolorous with thorax, femora and tibiae fulvous, tarsi dark brown, pulvilli tinged. Wings with veins brown, paler basad, calyptrae yellowish, knobs of halteres yellow.

Eyes closely approximated along frons, extensively so, parafrontals at narrowest width of frons contiguous, each equal to diameter of anterior ocellus, series of parafrontal bristles ending caudad at narrowest width of frons, profrons and check in profile each equal to one-third width of third antennal segment, the latter appendage 2.75 times as long as wide, longer arisal hairs equal to width of third antennal segment. Mesonotum with a broad band of weak acrosticals and one pair of robust bristles caudad, prealar bristle long, dorso-centrals 2–4, sternopleurals 1:2, hypopleura with setulae ventrad and above hind coxae.

Fore tibia with a fringe of semierect *pv* setulae, mid femur with short proximal *av* and stronger *pv*, mid tibia with 3 *post*, hind femur with 6 short *av* on distal half, and weak fine

av and *pv* on proximal half, hind tibia with 2 *av*, 2 *ad*, and semierect *post* setulae. Wings with *m-cu* cross-vein upright.

Length, 5 mm.

Female. Closely resembling the male except for sexual characters and weaker bristling on the femora; parafrontals, parafacials and cheeks whitish, second antennal segment mostly brown or black, mesonotum lustrous, and when seen from behind blackish laterad and devoid of outer pair of stripes on postsutural region. Tarsi black.

Parafrontals with 2 pairs of reclinate paraorbital and 4 or 5 pairs of parafrontal bristles. Fore tibia without *pv* series of semierect setulae, mid tibia with 3 *post*, mid femur with *av* and *pv* weak, setulose, hind femur with proximal *av* and *pv* weaker and sparse, hind tibia with 3 *av*, 2 or 3 *ad*.

Length, 6 mm.

HOLOTYPE: ♂, Mt. Katahdin, Chimney Pond, 2,914 feet, July 1-5, 1958 (USNM).

ALLOTYPE: ♀, same locality as holotype, July 3, 1959 (USNM). Syntypes: 1 ♀, Mt. Katahdin, North Basin trail, 2,800-3,200 feet, July 13, 1959; 1 ♀, Mt. Katahdin, South Basin, 3,000-3,500 feet, July 10, 1957 (both USNM).

The species *Mydaea grata* has a long prealar bristle, thus running in the keys to the couplet with *Mydaea urbana* (Meigen), and from which it may be distinguished by the weaker bristling on mid and hind femora, and the obsolescence of the outer pair of mesonotal stripes on postsutural region, when viewed from behind. The species *grata* is more closely related in habitus to *Mydaea detrita* (Zetterstedt), of which I have before me a male specimen determined by van Emden and kindly furnished by Mr. A. C. Pont, and a male and female from Sweden, the male identified by Ringdahl, all possessing stronger bristling on mid and hind femora.

I find that all the above specimens of *detrita* have one or more setulae on the hypopleural region adjacent to the hind coxa, and at variance with Hennig's (1956: 123) description of the male of *detrita*, namely "*Hypopleura nackt*."

Phaonia cauta, NEW SPECIES

Male. Black, subshining, parafrontals, parafacials and cheeks silvery pruinulent, third antennal segment black, palpi dark brown; thorax black, sparsely dusted, mesonotum with four vittae, becoming obscured on postsutural region as viewed from behind, scutellum fulvous, more or less darkened basad; abdomen with whitish gray dust and a medial vitta. Fore femur fulvous, with or without infuscation, mid and hind femora and all tibiae fulvous, tarsi black, pulvilli tinged. Wings clear, faintly yellowish anteriorly, and denser basad, calyptae and knobs of halteres yellow.

Eyes sparsely haired, frons at narrowest part as wide as distance between or including posterior ocelli, parafrontals here contiguous or lineally separated, with 4 pairs of parafrontal bristles, and 2 pairs of setulae opposite ocellar callosity, profrons and narrower part of cheek, in profile, respectively not longer nor higher than half width of third antennal segment, the latter appendage slightly longer than twice its width, longer arisal hairs slightly longer than width of third antennal segment; mesonotum with acrosticals setulose exclusive of caudal pair and one bristly presutural pair, prealar shorter than first dorsocentral bristle, dorsocentrals 2-3, sternopleurals 1:2, hypopleura hairless; abdomen subovate.

Fore tibia without *post*, mid femur with a series of sparsely set short *pv*, mid tibia with 3 *post*, hind femur with *av* series continued to basal region, and as weaker bristles on proximal half, with weak proximal *pv*, hind tibia with 2 or 3 *av*, 2 *ad*, 1 *pd*. Wings with *m-cu* cross-vein upright and slightly bowed inward at middle.

Length, 6 mm.

HOLOTYPE: ♂, Mt. Katahdin, South Basin, 3,200–3,500 feet, July 14, 1959 (USNM). Syntype: 1 ♂, same data as holotype.

The species *Phaonia cauta* has the third antennal segment entirely black, as in *P. apicalis* Stein, and from which it differs by having a shorter prealar bristle and longer hairs on the arista. The species *cauta* may be associated with the nearctic taxa *P. apicata* Johannsen and *P. bysia* (Walker), from both of which *cauta* may be separated by the entirely black third antennal segment, not yellowish at basal region. I have also taken *cauta* on Mt. Le Conte in the Great Smoky Mountains, 6 males and 26 females in May of 1958 and 1959.

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